

REMARKS

In the Office Action dated July 6, 1995, claims 1-35 are noted as pending. Claims 1-35 are rejected under 35 U.S.C. § 103 as being unpatentable over
5 Giordano et al., U.S. Patent No. 5,359,236 (Giordano) in view of Kenny et al., U.S. Patent No. 5,287,292 (Kenny). Reconsideration of the application is respectfully requested.

It is stated in the office action that claims 1-35 are pending. As noted in the Rule 1.60 documents filed on 3/9/95, claims 1-19 are canceled. Due to the
10 oversight, applicant again requests that claims 1-19 be canceled, without prejudice. Therefore, claims 20-35 are pending.

REJECTIONS UNDER 35 U.S.C. § 103:

15 Claims 20-35 are rejected under 35 U.S.C. § 103 as being unpatentable over Giordano in view of Kenny. Before discussing the art, a brief discussion of the present invention is desirable.

The present invention provides a programmable thermal sensor integrated into a microprocessor that generates and detects a threshold
20 temperature so that active cooling of the microprocessor is accomplished through system control.

In one embodiment the microprogram executed by the microprocessor causes a threshold value to be generated and stored in a predetermined internal register. The thermal sensor reads the programmed threshold value
25 stored in the internal register and generates an interrupt to the microprocessor when the temperature reaches the threshold temperature

indicated. In response, the processor takes the necessary steps to cool the processor unit. As noted in the specification (see p. 5 lines 10-14), the processor, in accordance with execution of the microprogram, can update the threshold value stored in the internal register.

5 Giordano discloses a thermal sensor for integrated circuits. Kenny discloses a heat regulator for integrated circuits which may be incorporated into a microprocessor. Kenny uses a counter to count how long the microprocessor can run "hot" or run "cool". Kenny does not teach or disclose regulating and sensing temperature. As noted by Kenny, the counter avoids
10 the use of any temperature sensing apparatus (column 2, lines 37-40).

 As Kenny teaches away from the use of a server (by using a counter), Applicants contend that there is no teaching to combine the references. Even if, there is a teaching to combine the Giordano and Kenny references, neither reference teaches or discloses the claimed invention. For example with
15 respect to claim 20, Giordano and Kenny, alone or in combination, neither teach nor disclose

 ". . . processing means for executing a plurality of instructions, said instructions including instructions for generating a value
20 representative of a threshold temperature for said microprocessor . . ."

 Although Kenny teaches the general concept of thermal control in a microprocessor, Kenny does not execute instructions to generate a value representative of a threshold temperature, the threshold temperature used by
25 the programmable thermal sensor to generate a detect signal when the sensor detects the threshold temperature.

Similarly, claim 27 is neither taught nor disclosed by the Giordano and Kenny references, alone or in combination. For example, Giordano and Kenny neither teach nor disclose

5 "... a processing unit for executing operations in accordance with a plurality of instructions, said processing unit including a read only memory (ROM) storing a microprogram and an internal register, said microprogram, when executed, generating representative of a threshold temperature for said microprocessor, and storing said value
10 in said internal register . . ."

In addition, claim 34 is not taught or disclosed by the Giordano and Kenny references. Giordano and Kenny, alone or in combination, do not teach or disclose a thermal sensing circuit, a programmable thermal sensor
15 that selectively generates a detect signal that triggers an interrupt, an interrupt handler, an output display for displaying a message that the microprocessor attained the threshold temperature, and a memory for storing instructions and data, including an operating system and interrupt service routine.

For the same reasons noted above with respect to independent claims
20 20, 27, and 34, corresponding dependent claims 21-26, 28-33, and 35 are distinguished over the Giordano and Kenny references.

CONCLUSION:

In view of the foregoing, Applicant submits that claims 20-35 are distinguished over the cited art and are in condition for allowance. Allowance of claims 20-35 is respectfully requested.

Respectfully submitted,
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10/6/95
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